

II. REMARKS

Claims 1-29 are pending. The Applicants' attorney has amended claims 4, 8-9, 11-12, 15, 19, 23-24, and 26-27, and has added new claims 28-29; but these amendments and new claims add no new matter to the patent application. In light of the following, all of the claims as amended are now in condition for allowance, and, therefore, the Applicants' attorney requests the Examiner to withdraw all of the outstanding rejections. But if after considering this response the Examiner does not allow all the claims, the Applicant's attorney requests that the Examiner contact him to schedule a teleconference to further the prosecution of the application.

Amendments to the Specification

The Applicants' attorney has amended the specification to correct typographical errors. But these amendments add no new matter to the patent application.

Rejection of Claims 1-2, 5, 7, 10, 12-13, 15-16, 20-22, 24-25, and 27 Under 35 U.S.C. § 103(a) As Being Unpatentable Over U.S. Patent 6,324,030 to Cheung et al.

As discussed below, the Applicants' attorney disagrees with this rejection.

Claim 1

Claim 1 recites a position-burst demodulator operable to square first and second samples of a servo position burst, add the squared first and second samples to generate a first sum, and calculate the square root of the first sum.

For example, referring to FIGS. 5-6 and paragraphs [30] – [35] of the patent application, a multiplier 74a squares an even sample 60a of a servo position burst (e.g., burst Bj of FIG. 4) and a multiplier 74b squares an odd sample 62a of the servo position burst. A summer 76 sums the squares of the samples 60a and 62a, and a root circuit 78 takes the square root of this sum, the square root being proportional to or equalling the magnitude of the servo position burst as sensed by a read head.

In contrast, Cheung neither discloses nor suggests calculating a square root of the sum of the squares of samples of a servo position burst. Referring, e.g., to FIGS. 2-3 and col. 7, line 35 – col. 8, line 9, Cheung discloses a filter 154 for filtering

burst-interval sample values X_n and for generating values Y_n as respective sums of the filtered values X_n , a squarer 164 for squaring each value Y_n to generate a corresponding value $Z_n = Y_n^2$, and a position-error (PES) signal burst accumulator 168 for summing the values Z_n to generate PES signals PESA, PESB, PESC, and PESD, which respectively correspond to the servo burst intervals (servo position bursts) P1, P2, P3, and P4 (see, e.g., FIG. 8). From the signals PESA, PESB, PESC, and PESD a quadrature demodulator 172 generates primary and quadrature PES signals PESP and PESQ, and from PESP and PESQ a ramp stitching circuit 150 generates a linear PES ramp for each disk track. Although Cheung states that this PES ramp “can be further linearized with a . . . square-root approximation . . .,” this approximation is applied to the PES ramp, not to the sum of the squares of the sample values X_n or to the sum of the squares of the values Y_n . Therefore, Cheung neither discloses nor suggests calculating the square root of the sum of the squares of sample values X_n of a servo burst interval P1, P2, P3, or P4.

Claims 5, 10, 16, and 20

These claims are patentable for reasons similar to those recited above in support of the patentability of claim 1.

Claim 12

Claim 12 as amended recites a circuit operable to calculate a head-position error signal from samples of first and second servo position bursts only.

For example, referring to FIGS. 4, 6, and 9 and paragraphs [32] – [35] of the patent application, a circuit 70 can calculate a head-position error signal from the magnitudes MAGA and MAGB of only two servo position bursts (e.g., bursts A_{j+1} and B_j), and can calculate MAGA and MAGB from samples of only these two bursts. That is, the circuit 70 can calculate the head-position error signal from samples of no more than two bursts.

In contrast, Cheung neither discloses nor suggests calculating a head-position error signal from samples of first and second servo position bursts only. Referring, e.g., to FIGS. 2 and 8 and col. 8, lines 17-56, Cheung’s ramp stitching block 150 calculates a

position error (PES) signal from the sample values X_n of four burst intervals (servo position bursts) P1 – P4; Cheung includes no disclosure or suggestion that one can calculate a PES signal from the sample values X_n of fewer than four burst intervals.

Claims 15, 24, and 27

These claims are patentable for reasons similar to those recited above in support of the patentability of claim 12.

Rejection of Claims 3 and 17-18 Under 35 U.S.C. § 103(a) As Being Unpatentable Over Cheung In View Of U.S. Patent 5,661,760 to Patapoutian

The Applicants' attorney disagrees with this rejection, because claim 1 is patentable by virtue of its dependency from claim 1, and claims 17 and 18 are patentable by virtue of their dependencies from claim 16.

Allowable Subject Matter

The Applicants' attorney has rewritten claims 4, 8-9, 11, 19, and 23 in independent form, and has amended allowed claim 26 to provide proper antecedent basis for "position-error signal." But this amendment does not narrow claim 26.

Conclusion

In light of the foregoing, claims 1-3, 5-7, 10, 13-14, 16-18, 20-22, and 25 as previously pending, claims 4, 8-9, 11-12, 15, 19, 23-24, and 26-27 as amended, and new claims 28-29 are in condition for allowance, which is respectfully requested.

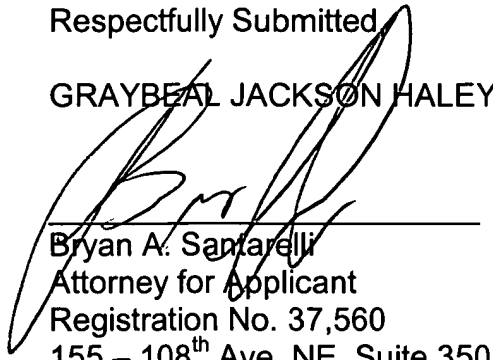
In the event additional fees are due as a result of this amendment, payment for those fees has been enclosed in the form of a check. Should further payment be required to cover such fees you are hereby authorized to charge such payment to Deposit Account No. 07-1897.

If the Examiner believes that a phone interview would be helpful, he is respectfully requested to contact the Applicants' attorney, Bryan Santarelli, at (425) 455-5575.

DATED this 19th day of July, 2004.

Respectfully Submitted

GRAYBEAL JACKSON HALEY LLP



Bryan A. Santarelli
Attorney for Applicant
Registration No. 37,560
155 – 108th Ave. NE, Suite 350
Bellevue, WA 98004-5973
(425) 455-5575